WHAT IS CLAIMED IS:

1. A microarray cartridge, comprising:

a body having a wall forming a cavity surrounded by a mating surface, the cavity including a reaction chamber and at least one microarray support dimensioned to support a microarray slide within the cavity such that the slide covers the reaction chamber; and

a cover configured to cover the cavity and sealingly adhere with the mating surface of said body by non-removable adhering means.

2. The microarray cartridge of claim 1, wherein the non-removable adhering means comprises a heat seal between said cover and the mating surface of said body.

3. The microarray cartridge of claim 1, wherein the non-removable adhering means comprises a non-removable adhesive seal between said cover and the mating surface of said body.

4. The microarray cartridge of claim 1, wherein the non-removable adhering means does not include a mechanical fastener.

5. The microarray cartridge of claim 1, comprising a plurality of microarray supports within the cavity for positioning the microarray slide.

6. The microarray cartridge of claim 1, wherein the cartridge further comprises a first access site communicating with the reaction chamber for passing fluids from a delivery device and into the reaction chamber.

7. The microarray cartridge of claim 6, wherein the first access site is located on said body, wherein the access site is dimensioned to pass fluids from a fluid delivery device through the body wall and into the reaction chamber.

8. The microarray cartridge of claim 6, wherein the body further comprises a first dimple feature in communication with the reaction chamber and the first access site, the first dimple feature forming a passage for a fluid around a first edge of the microarray slide and into the reaction chamber when the microarray slide is placed in the cavity.

9. The microarray cartridge of claim 8, wherein the first access site is located on said body and communicates with said dimple feature, such that fluid from the fluid delivery device passes through the body wall and into the dimple feature.

10. The microarray cartridge of claim 8, wherein the first access site is located on said cover and communicates with said dimple feature, such that fluid from the fluid delivery device passes through the cover and into the dimple feature.

11. The microarray cartridge of claim 10, wherein the first access site is an open port and the fluid delivery device is a pipette dimensioned to deliver fluids through the port.

12. The microarray cartridge of claim 10, wherein the first access site has a thickness of between 0.003 and 0.015 inches, and the fluid delivery device is a needle for piercing through the access site and delivering fluids into the first dimple feature.

13. The microarray cartridge of claim 8, wherein said body further comprises a second dimple feature in communication with the reaction chamber, the second dimple feature forming a passage for fluids around a second edge of the microarray slide and into the reaction chamber when the microarray slide is placed in the cavity.

14. The microarray cartridge of claim 13, wherein said cartridge further includes a second access site communicating with the second dimple feature for passing fluids into or out of the reaction chamber.

15. The microarray cartridge of claim 6, wherein the first access site is an open end of the cartridge, said cartridge further comprising a flange feature at the open end to facilitate entry of a fluid delivery device through the first access site before sealingly cohering said cover to said body at the open end.

16. The microarray cartridge of claim 15, wherein the flange feature comprises a first flange attached to and extending from an edge of said body at the access site and a second flange attached to and extending from a corresponding edge of said cover, such that the first and second flanges facilitate passage of the fluid delivery device through the open end of the cartridge between the body and the cover.

17. The microarray cartridge of claim 1, wherein the body is thermoformed and the body wall has a thickness of less than 0.065 inch.

18. The microarray cartridge of claim 17, wherein the thickness is between 0.005 and 0.025 inch.

19. The microarray cartridge of claim 18, wherein the thickness is between .010 and .015 inch.

20. The microarray cartridge of claim 1, wherein the body is injection molded and the body wall has a thickness of less than 0.1 inch.

21. The microarray cartridge of claim 21, wherein the thickness is between 0.032 and 0.075 inch.

22. The microarray cartridge of claim 22, wherein the thickness is between 0.040 and 0.060 inches.

23. The microarray cartridge of claim 1, wherein the body includes a plurality of cavities, each of the plurality of cavities having a corresponding reaction chamber and at least one corresponding microarray support for supporting a microarray slide.

24. The microarray cartridge of claim 24, wherein the plurality of cavities comprises at least four cavities.

25. The microarray cartridge of claim 1, wherein reaction chamber has a volume of at least 500 μL .

26. The microarray cartridge of claim 25, wherein the volume is at least 1 mL.

27. The microarray cartridge of claim 26, wherein the volume is 1 mL to 3 mL.

28. The microarray cartridge of claim 1, wherein the body further includes a plurality of obstacles within the reaction chamber arranged to affect motion of fluid within the chamber.

29. The microarray cartridge of claim 28, wherein the obstacles are attached to a surface of the reaction chamber opposite the microarray.

30. The microarray cartridge of claim 1, further comprising a snap feature to hold said cover over said cavity before sealingly adhering said cover to said mating surface

31. The microarray cartridge of claim 30, further comprising a microarray slide positioned within the cavity of said body and supported by the microarray support such that a surface of said microarray slide covers the reaction chamber.

32. The microarray cartridge of claim 1 wherein the microarray slide comprises an array of nucleic acid probes distributed on the surface of a glass substrate, and wherein

the microarray slide is positioned such that the probes are in communication with a fluid in the reaction chamber.

33. The microarray cartridge of claim 32, wherein the fluid includes nucleic acid molecules under conditions conducive to hybridization between the nucleic acid molecules and the nucleic acid probes on the microarray.

34. A microarray cartridge, comprising:

a cavity for holding a microarray slide, said cavity including a reaction chamber and a microarray support structure dimensioned to support a microarray slide within the cavity such that the slide covers the reaction chamber when the slide is placed within the cavity;

a mating surface surrounding said cavity; and

a cover contiguously extending from an edge of said mating surface, said cover configured to hingably cover said cavity and sealingly adhere to said mating surface.

35. The microarray cartridge of claim 34, further comprising a snap feature to hold said cover over said cavity before sealingly adhering said cover to said mating surface.

36. The microarray cartridge of claim 35, further comprising:

an adhering seal between the cover and the mating surface surrounding the cavity; and

the microarray slide sealed within the cavity, wherein the microarray slide comprises an array of biological probes distributed on a surface of the slide, and wherein the microarray slide is positioned in the cavity such that the probes are in communication with a fluid in the reaction chamber.

37. The microarray cartridge of claim 36, wherein the adhering seal is a heat seal.

38. The microarray cartridge of claim 34, further comprising an access site for introducing fluids into the reaction chamber when said cover covers said cavity.

39. The microarray cartridge of claim 36, wherein the access site comprises an open end of the cartridge between the cover and the mating surface, said cartridge further comprising:

a first flange attached to and extending from an edge of said mating surface at the open end of the cartridge; and

a second flange attached to and extending from a corresponding edge of said cover, such that the first and second flanges facilitate entry of a fluid delivery device between said cover and said mating surface at the open end of the cartridge when said cover covers said cavity.

40. The microarray cartridge of claim 34, further comprising a plurality of said cavities separated by said mating surface, wherein said cover covers and seals said plurality of cavities when said cover sealingly adheres to said mating surface.

41. The microarray cartridge of claim 34, further comprising a catch feature to facilitate manipulation of the cartridge during a high-throughput processing.

42. The microarray cartridge of claim 41, wherein the catch feature comprises a notch or a raised portion on at least one edge of said cartridge.

43. A high-throughput method of processing a microarray of biological probes, comprising:

placing a microarray of biological probes into a cartridge comprising a body having a cavity for holding the microarray and a cover for covering the cavity and adhering with the body, the cavity including a reaction chamber defined at least in part by supports that hold the microarray in communication with the reaction chamber;

introducing a volume of a biological sample into the reaction chamber through an access site of the cartridge;

sealing the cartridge using a non-removable adhering seal;

contacting the biological probes on the microarray with the sample within the reaction chamber under conditions conducive to reaction between the biological sample and the biological probes;

washing the biological probes; and

detecting where reaction of biological compounds in the sample with biological probes on the microarray has occurred.

44. The method of claim 43, wherein the biological probes are nucleic acids.

45. The method of claim 43, wherein the biological probes are proteins.

46. The method of claim 43, wherein the access site is an open end of the cartridge between the body and the cover, and wherein the non-removable adhering seal comprises a heat seal between the body and the cover at the open end.

47. The method of claim 46, wherein the cartridge further comprises a flange feature at the open end to facilitate entry of a fluid delivery device between the body and the cover.

48. The method of claim 43, further comprising sealingly adhering the cover to the body before introducing the volume of a biological sample.

49. The method of claim 43, wherein the access site is a port on the cartridge communicating with the reaction chamber, and introducing the volume of biological sample comprises delivering the sample through the port using a fluid delivery device.

50. The method of claim 43, wherein washing the biological probes comprises washing the probes on the microarray within the cartridge.

51. The method of claim 50, further comprising drying the microarray after the washing step and before the detecting step.

52. The method of claim 43, wherein the sample volume is at least 500 μL.

53. The method of claim 52, wherein the sample volume is at least 1 mL.

54. The method of claim 53, wherein the sample volume is between 1 mL and 3 mL.

55. The method of claim 43, wherein introducing the volume of the biological sample comprises delivering the sample into the reaction chamber using a robotically controlled delivery device configured to deliver the volume through the access site.

56. The method of claim 55, wherein the cartridge includes at least one dimple feature in communication with the chamber, and the step of introducing the volume of the biological sample further comprises injecting the sample through the access site and into the dimple feature using the robotically controlled delivery device.

57. The method of claim 56, wherein the delivery device is a needle for piercing through the cartridge at the access site.

58. The method of claim 43 wherein said step of contacting under conditions conducive to reaction between the biological sample and the biological probes comprises:

heating the cartridge to a temperature between 40°C and 65°C ; and

flowing the sample through the chamber and over the array of biological probes for a desired period of time.

59. The method of claim 58, wherein said flowing the sample comprises rotating the cartridge on a wheel during said heating.

60. The method of claim 59, wherein the wheel comprises a plurality of radial vanes, each vane configured to hold at least one cartridge.

61. The method of claim 60, wherein the wheel is configured to hold at least 48 cartridges.

62. The method of claim 58, wherein said flowing the sample comprises rocking the cartridge on a rocker platform during heating.

63. The method of claim 58, wherein the reaction chamber includes a plurality of obstacles arranged to promote flowing and mixing the sample over the biological probes.

64. The method of claim 43, wherein the step of washing the biological probes comprises:

delivering wash buffer into the reaction chamber of the cartridge using a robotically controlled delivery device; and

flowing the wash buffer through the reaction chamber and over the biological probes.

65. The method of claim 43, further comprising:

introducing a second biological sample onto a second microarray of biological probes within a second cavity of the cartridge;

contacting the biological probes of the second microarray with the second biological sample under conditions conducive to reaction between the second biological sample and the biological probes of the second microarray;

washing the biological probes of the second microarray within the cartridge; and

detecting where reaction of biological compounds in the second sample with biological probes on the second microarray has occurred.

66. The method of claim 65, wherein the cartridge comprises at least eight microarrays.

67. The method of claim 66, further comprising stacking a plurality of cartridges on a fixture prior to hybridizing.

68. The method of claim 43, further comprising:

sealing the cartridge by adhering the cover to the body;

shipping the cartridge and microarray to a user; and

storing the microarray in the cartridge prior to the step of introducing the sample.